

REMARKS

This application has been carefully reviewed in light of the Office Action dated April 8, 2003 (Paper No. 11). Claims 31 to 69 are in the application, with Claims 66 to 69 having been added herein. Claims 31, 56, 61 and 67 to 69 are the independent claims. Reconsideration and further examination are respectfully requested.

Applicants thank the Examiner for the indication that Claims 39 to 41 contain allowable subject matter and would be allowable if rewritten in independent form. Applicants have not rewritten these claims in independent form, however, since it is believed that all claims in the application are now in condition for allowance, as discussed in more detail below.

Turning to the prior art rejections, Claims 31 to 35 and 51 to 65 were rejected under 35 U.S.C. § 102(e) over U.S. Patent No. 6,188,777 (Darrell); and Claims 34, 36 to 38, 42 to 50, 59 and 64 were rejected under § 103(a) over Darrell in view of U.S. Patent No. 6,292,574 (Schildkraut). Applicants have considered the Examiner's comments together with the applied references and respectfully submit that the claims herein are patentably distinguishable over the applied references for at least the following reasons.

Independent Claims 31, 56 and 61 concern the detection of a face in a color digital image formed of a plurality of pixels. According to one aspect of the invention, a color distribution model is selected from a plurality of color distribution models, where the selection is dependent on at least one image capture condition provided with the color digital image. The color of the plurality of pixels is then tested using the selected color distribution model to determine those pixels having predominantly skin color. Only the

pixels determined to have predominantly skin color are subjected to further facial feature analysis while those pixels not having a predominantly skin color are not subjected to further facial feature analysis.

The applied references are not understood to disclose the foregoing features of the present invention. In particular, the applied references are not understood to disclose at least the feature of selecting a color distribution model from a plurality of color distribution models, where the selection is dependent on at least one image capture condition provided with a color digital image.

Darrell concerns a system for detecting and tracking a user's face. As conceded on page 6 of the Office Action, Darrell is silent concerning the use of a color distribution model in determining whether pixels have a skin color. Rather, Darrell is understood to use either a Gaussian prior probability model or a K-Nearest Neighbor classifier when determining whether a pixel has a skin color. See column 7, lines 11 to 21. Furthermore, Darrell is not understood to select either the Gaussian prior probability model or the K-Nearest Neighbor classifier from a plurality of such models, nor is Darrell understood to select them based on an image capture condition provided with a color digital image being analyzed. Therefore, Darrell is not understood to disclose at least the feature of selecting a color distribution model from a plurality of color distribution models, where the selection is dependent on at least one image capture condition provided with a color digital image.

Schildkraut, which was applied in the rejection of certain dependent claims, is not understood to disclose or suggest anything to remedy the foregoing deficiencies of

Darrell. Schildkraut concerns a system for detecting redeye in digital images which detects regions of a digital image that are skin colored. As described beginning at page 2, line 56, of Schildkraut, a three-dimensional histogram is constructed using LST color space values from the color image. The Office Action contends that this three-dimensional histogram corresponds with a color distribution model. Even if this characterization was correct, which Applicants do not concede, the three-dimensional histogram used in Schildkraut is not understood to be selected from a plurality of three-dimensional histograms, and furthermore is not understood to be selected depending on an image capture condition provided with the digital image. Therefore, Schildkraut is not understood to disclose or suggest at least the feature of selecting a color distribution model from a plurality of color distribution models, where the selection is dependent on at least one image capture condition provided with a color digital image.

Accordingly, independent Claims 31, 56 and 61 are believed to be allowable over the applied references. Reconsideration and withdrawal of the § 102(e) rejection of Claims 31, 56 and 61 are respectfully requested.

New independent Claim 67 concerns the detection of a face in a color digital image formed of a plurality of pixels. The color of the plurality of pixels is tested utilizing at least one threshold dependent on at least one image capture condition provided with the color digital image to determine those pixels having predominantly skin color. Those pixels determined to have predominantly skin color are subjected to further facial feature analysis, while those pixels not having a predominantly skin color are not subjected to further facial feature analysis.

New independent Claims 68 and 69 also concern detecting a face in a color digital image formed of a plurality of pixels. A threshold is selected from a plurality of thresholds, where the selection is dependent on at least one image capture condition provided with the color digital image. The color of the plurality of pixels is then tested using the selected threshold to determine those pixels having predominantly skin color. Those pixels determined to have predominantly skin color are then subjected to further facial feature analysis.

The applied references are not understood to disclose the foregoing feature of using a threshold dependent on at least one image capture condition provided with a color digital image to determine which pixels have predominantly skin color. While the Office Action has noted that Schildkraut utilizes a threshold, as described in column 3, lines 27 and 28, this threshold is understood to have a constant value that is not dependent on an image capture condition provide with a digital image being analyzed. Accordingly, new independent Claims 67 to 69 are believed to be allowable over the applied references.

The other claims in the application are dependent from the independent Claims discussed above and therefore are believed to be allowable over the applied references for at least the same reasons. Because each dependent claim is deemed to define an additional aspect of the invention, however, the individual consideration of each on its own merits is respectfully requested.

In view of the foregoing amendment and remarks, the entire application is believed to be in condition for allowance and such action is respectfully requested at the Examiner's earliest convenience.

Applicants' undersigned attorney may be reached in our Costa Mesa, California, office by telephone at (714) 540-8700. All correspondence should be directed to our address given below.

Respectfully submitted,



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